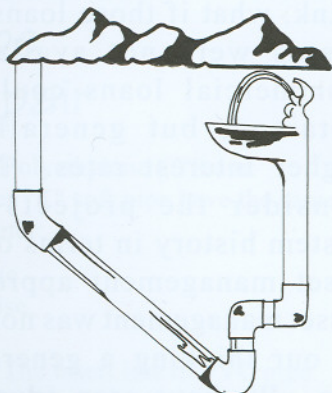


Water Lines



Water Lines is the resource newsletter and calendar of the Nevada Drinking Water and Wastewater Training Coalition.

Volume 23 Winter 2006 Issue

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Special Insert: Sources of Funding

Water Lines is funded by
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Environmental Protection

Editor, Brent Farr, P.E.

Editor, and Production, Joe Beard Jr.

Featured System: Battle Mountain

By Bob Foerster, NvRWA

Battle Mountain, served by Lander County Water and Sewer District No. 1, continues a process of infrastructure replacement and upgrades. Roger Sutton, Public Works Director for seven years, manages the district. I sat down with Roger recently to get an update on progress and find out what is on the planning horizon.



Trenching operations in Battle Mountain

The water distribution system was in extreme decline, with water losses reaching as high as fifty percent. The alkaline valley floor soil, combined with high groundwater in this area, creates a harsh environment for metals. Distribution pipe had deteriorated to a point where anything left exposed after a repair would soon sprout new leaks. The system was last renovated or expanded in 1953-55, using cast iron pipe. Some parts of the system now being replaced date back to 1934. Shaw Engineering completed a Preliminary Engineering Report (PER) in 2002, and after delays in obtaining funding, the pipe

★
**Featured
System**

replacement project is now underway. About 42,000 feet of C900 PVC pipe is being installed, serving all town areas north of the I-80 freeway. Around 50 new hydrants and over 200 new valves are included. Another change is from chlorine gas to sodium hypochlorite for disinfection at the wells. Hypochlorite has been used at the District wastewater treatment plant since 2002, and delivery to small tanks to be installed at two wells will become part of the route.

The first phase of the water system renovation is 64.8 percent funded by an 'AB198' State grant; the remainder through a USDA - Rural Development loan. Total project cost is \$3.8 million. With the cost increases of recent years, Phase I costs are above those estimated in 2002. The second phase is proposed to include two, 1 million gallon storage tanks to be located on the south-side hills, associated transmission lines and a new well. The landmark elevated storage tank, built in the late 1980s, will remain as long as it is serviceable. With well water having historical arsenic concentrations in the 14-21 ppb range, the new well will be sited to enable centralized treatment when arsenic removal facilities are built. The system is now operating under an exemption, which allows the District to comply with the Arsenic Rule until 2009. Phase 2 costs are

(Continued on page 2)

Featured System: Battle Mountain

(Continued from page 1)

now estimated at \$3.8 million. Detailed planning and funding for Phase 2 will follow shortly after completion of Phase 1.

Before the Sequencing Batch Reactor (SBR) plant was built, wastewater was treated in facultative aerated lagoons. At a cost of \$3.9 million, the facility includes two SBR tanks, a digester, blowers, and a chlorine contact tank. Discharge is ultimately to the Reese River. Sludge is concentrated in the aerobic digester, then polymer is added before belt filter press dewatering. The resulting solids are collected in a trailer and hauled to the landfill. Currently, recycling of belt filter press water, along with concentration in the digester, is resulting in elevated phosphate levels. An engineering solution and additional funding are needed to fix the problem. The planned fix is discharge of digester solids to a long-term holding facility with supernatant recycle. To be located at the old facultative pond site, the lined, divided ponds, totaling 300 ft x 600 ft x 8 ft deep, were originally estimated to cost approximately \$350,000. The cleanout cycle would be in the range of twenty to twenty-five years. In the short-term, alum is being added to each SBR to precipitate the phosphate.

The next phases of wastewater system improvements involve relocating Broad Street sewers, at a cost of \$1.3 million, and replacing lift stations and the existing clay-pipe collection system at an estimated cost of \$3.7 million. A PER was completed in 2005, again

by Shaw Engineering. There are now five lift stations and the new system is proposed to eliminate one or possibly two of these.

The cost of all of these projects is significant. Fortunately, the impact to the customers has been minimized by obtaining grants and low-interest, long-term loans from State and Federal government agencies. Estimated rate increases for the 1,100 customers, (all metered), are \$9 / month for the phase one water project, \$6.50 / month for the phase two water project, and \$4.50 / month for sewer improvements. The present sewer rate is \$32 monthly.



Paving operations in Battle Mountain

The County Board of Commissioners adjusted water rates by five percent each year from 2001 through 2006, so that now the base rate with five thousand gallons is \$21.65, plus a unit charge of \$1.05 per thousand gallons for use above five thousand gallons. The five percent increases have ended, and, at Rogers' request, the Nevada Rural Water Association is assisting with a rate study to develop a budget-based water rate.

These urgently needed infrastructure replacements and associated costs make me think, what if those loans and grants were not available? Commercial loans could be obtained, but generally at higher interest rates. Next, consider the projects and system history in terms of the asset management approach. Asset management was not part of our thinking a generation ago. We have seen advances in financial and technical management. For example, the development of computerized maintenance management programs, and there have always been long-range plans and capital improvement plans. The holistic approach expressed through asset management answers the question, 'What is the least costly way, over time, to fund infrastructure life-cycle costs?'

This system can be seen as an example of the way things have been done up to now. The governing body recognized the need and implemented rate increases early. There is no blame to pass around. As an industry, we are evolving and improving the ways in which infrastructure replacement funding is planned. It is time to embrace this new way of thinking about the infrastructure sustaining our communities – analyze the life-cycle costs including maintenance, renovation and replacement, and finance those costs from the beginning.

The Spigot Q & A: Focus on Pipe Repair



Q 1. Polyethylene CTS and copper "K" soft pipe have the same diameter:

- a. True
- b. False

Q 2. The insert line of PVC pipe needs to be pushed into the bell until it is not visible:

- a. True
- b. False

Q 3. On a bell joint restraint, how much torque should be applied to the all-thread rod nuts:

- a. 15 foot pounds
- b. 20 foot pounds
- c. Hand tight
- d. 75 foot pounds

Q 4. Stainless steel may sometimes be coated with epoxy or Teflon because:

- a. Manufacturers use different colors
- b. It helps prevent rust
- c. It prevents galling
- d. It will allow the use of low-grade steel to reduce costs

Q 5. How many full circle repair clamps can be joined together to make a multiple band large clamp:

- a. One
- b. Two
- c. Three
- d. Four

Crystel Montecinos, Consultant, Tigren Inc., prepares The Spigot.

Many thanks to Jim Duncan of Western Nevada Supply for his April 2005 UNR training.

**Answers to Spigot
1.A, 2.B, 3.C, 4.C, 5.C**

NDEP - Update on Arsenic Compliance Progress

By Bert Bellows, NDEP

Nine and one-half months after the new Arsenic Rule became effective, twenty-five of the one hundred and two systems in the State with historic arsenic levels over the ten parts-per-billion standard are already in compliance with the new rule. This is a very encouraging statistic. However, to get the remaining seventy-five percent of these systems in compliance will be somewhat more challenging. Let me explain.

Perhaps the most famous arsenic treatment system in the State (if not the nation) is the plant built in the City of Fallon. The City came under fire years ago for violating the old arsenic standard of fifty parts-per-billion, and, after years of not-so-friendly discussions with the USEPA, were finally forced to construct an arsenic removal plant. The protracted battle which resulted in this plant finally being built may have been of some benefit, in that, it generated national publicity and aided the City in obtaining funding from a multitude of sources. This will not be the case for the remaining Public Water Systems in Nevada in their attempts to obtain compliance.

For instance, of the twenty-five systems already compliant, ten are federally-owned facilities, most associated with the Nevada Test Site and Nellis Air Force Base. This includes the Naval Air Station at Fallon, which partnered with the City of Fallon in the construction and operation of the \$17 million plant there. Five of these systems are operated at mine sites in northern Nevada. Three sites are industrial facilities, two of which

had existing reverse osmosis treatment plants. Five other systems are part of large water systems which had the good fortune of eliminating sources of high arsenic; making up the difference by blending through interties with sources low in arsenic, or modifying existing treatment works. One of the 25 systems is a small community water system, blessed with multiple sources. That system will be able to meet the new standard by an approved plan for blending of those sources.

The point is, that for these systems already in compliance, funding has not been much of an issue. They all had those three key issues that we in the Bureau of Safe Drinking Water look at when permitting public water systems in the State of Nevada: technical, managerial and financial capacity.

For the remaining seventy-seven systems, this is the hurdle we must all work together to clear in the upcoming twenty-six months of the exemption period.



Call for Nominations for NTC Board Members

Please nominate the person named below (may be yourself) to serve on the board of the Nevada Training Coalition.

Name / Title: _____

Organization: _____

Address: _____

Telephone: _____

Email: _____

Signature: _____

Nominations close March 1, 2007 and elections will be at the NTC meeting in March at the NvRWA Conference.

Please direct to: Bob Foerster, NVRWA, 363 Fairview Drive, Carson City, NV 89701 or fax to 775-841-4243.

Safety Zone: Safe Use of Extension Cords

By Steve Palmer, RCAC

Virtually every utility operator must occasionally use an extension cord at work or at home. The US Consumer Products Safety Commission estimates that about 4,000 people are injured every year by extension cord related accidents. About half of these injuries involve lacerations, contusion, fractures or sprains caused by people tripping over cords. Thirteen percent of the people injured are under five years old. About half of these children experienced electrical burns to their mouths. The CPSC also estimates nearly 3,500 residential fires are caused yearly from improperly used, short circuited, damaged or overloaded extension cords. Here are a few tips to help prevent injuries when using extension cords:

- Use extension cords only when necessary, and only as a temporary measure.
- Use polarized extension cords with polarized appliances. A polarized extension cord has one blade that is wider than the other, so it can only be inserted one way into a receptacle.
- Replace cracked or worn cords with new, #16 gauge or larger cords. Throw away any old #18 gauge cords.

- Insert plugs fully so that no part of the prong is exposed when the cord is in use.
- When disconnecting, pull on the plug itself, never on the cord.
- Never use an extension cord when it is coiled or looped. Never cover up any portion of a cord with rugs, clothing, papers, etc. Avoid laying a cord where it can be walked on or damaged by furniture or moving equipment
- Check the plug and the body of the cord while it is in use. Some warming is normal, but if it feels hot or the plastic is softening in places, it is a possible indicator that the plug wires or connections are failing.
- Never use nails or staples to attach an extension cord to a baseboard or other surface. This could damage the cord, causing an electrical or fire hazard.
- Don't overload the cord by plugging in appliances that draw more total amperage than the cord is rated for. Use special, heavy duty extension cords for high wattage appliances.
- When using power tools or appliances outside, make sure the extension cord is labeled for outdoor use.
- Use only three wire extension cords for appliances with three

prong plugs. Never remove the ground prong (round or U shaped) from an extension cord. An improperly grounded appliance increases the chance of shock or electrocution.

- Never attempt to repair an extension cord with electrical tape. Replace an extension cord if the outer insulation on the body of the cord is damaged, even if the inner wire insulation is intact. If a plug is damaged, cut the plug and any cord with damaged insulation off and replace with a UL-listed replacement plug. If you are not absolutely sure how to repair a cord, leave it to a professional electrician.

Industry safety standards, such as those of Underwriters Laboratories Inc. (UL), now require that extension cords have safety closures, warning labels, and rating information about the electrical current. All new UL-listed extension cords must be constructed with #16 gauge or larger wire, or be equipped with integral fuses. The #16 gauge wire is rated to carry 13 amperes (up to 1560 watts), as compared to the formerly-used # 18 gauge cords that were rated for 10 amperes (up to 1200 watts).

Featured Professional: Debra Lynn Kaye, P. E.

By Chet Auckly

This is a story about a young energetic person whose quest for excellence took them to the top of their field. The person I am referring to is Debbie Kaye, a Class Act.

I first met Debbie in 1990 when she joined the operations group as an "Assistant Water Plant Operator" for Sierra Pacific Power Company's Water Production Department. After talking to Debbie, I quickly realized this person is very smart and interested in learning everything possible in the water field. I believed Debbie was a breath of fresh air, and I could see her going a long way in this typically male-dominated field.

Debbie was always full of questions and would pursue getting the answer no matter how long it took her; and, once she gained the knowledge she would immediately want to act on her findings. I was always interested in helping open doors for talented folks and Debbie was one of the most talented individuals I had ever worked with.

I remember telling Debbie to pursue an engineering degree. She would list the reasons why it wasn't feasible, none of which I accepted. So I persisted and told her that her future in the water business would be un-paralleled if she would get back in school and finished up her degree. So,

when she decided to go back to school and pursue Civil Engineering at the University of Nevada in Reno, this made my day!

Debbie started taking classes while working full time (spending several years on grave yard) and working her way through several key promotions at the same time: Water Plant Operator in 1992 and Working Foreman in 1995. Debbie also gained Operator Certifications at the highest level in both Treatment and Distribution during this same period of time.

Seeing her do the things she did was very humbling to me. Her ability to work 40 hours per week and still stay on the Dean's List for UNR's College of Engineering displayed her management talents.

Debbie graduated from the University of Nevada with a B.S. in Civil Engineering in 1996 and was also able, along the way, to get married and start a beautiful family. Her little daughter is 8, and from what I have been told is a lot like her mom!

Debbie also gained a few more promotions: Engineer, Civil Engineering, Electric, Gas and Water (1998), Manager Water Treatment (1999) and finally to Manager of Operations and Maintenance in June 2001.

She recently left Reno to start her own consulting firm in August of this year. I love the name of her new company, Kayepability Consulting.

Debbie was also your most recent Chair of the California / Nevada Section of the AWWA and was recently featured in the ASCE project "Extraordinary Women Engineers," published in February 2006.

I would like to finish this brief re-cap of a very special person by simply saying Debra Lynn Kaye is a true example of what hard work, determination, and an immutable drive for achieving excellence can do for anyone. Knowing Debbie has been a highlight in my career!



Debbie Kaye, P.E.

Pretreatment Regulations

By Stephen Long, City of Reno

The Clean Water Act was passed by the federal government in 1972. The Act called for the Environmental Protection Agency (EPA) to develop national pretreatment program standards to control industrial discharges into sewerage systems. The program is designed to reduce the level of pollutants discharged by industry and other non-domestic wastewater sources into municipal sewerage systems, and thereby, reduce the amount of pollutants released into the environment. The term pretreatment refers to the requirement that nondomestic sources discharging wastewater to Publicly Owned Treatment Works (POTW) control their discharges and meet discharge limits established by the EPA, the State or local authority. The control of pollutants may necessitate treatment prior to discharge to the POTW, therefore the term pretreatment.

The objectives of the pretreatment program are to protect the POTW from pollutants that may interfere with treatment plant operations, protect personnel working for the POTW, prevent the pass-through of pollutants into the environment and to improve POTW opportunities for the beneficial reuse of sewer effluent and bio-solids.

There are two sets of standards, Categorical Pretreatment Standards and Prohibited Discharge Standards, which restrict the level of pollutants that may be discharged by nondomestic sources of wastewater into sewerage systems. These standards must be enforced by all federally approved pretreatment programs. Categorical Pretreatment Standards are technology based limitations on pollutant discharges that apply to specified process wastewaters of particular industrial categories. Prohibited Discharge Standards are general prohibitions that prohibit the discharge of wastes that pass through or interfere with POTW operations. Both standards can be found in the Code of Federal Regulations in 40 CFR Part 403.

The National Pretreatment Program is unique, in that, the General Pretreatment Regulations require all large POTWs (those designed to treat more than 5 million gallons per day) and smaller POTWs with significant industrial discharges to establish local pretreatment programs. There are more than 1,500 POTWs in the United States that are required to implement local pretreatment programs. The Reno/Sparks Pretreatment Program was the first pretreatment program approved by the EPA in the United States.

The City of Reno Pretreatment Program is implemented by the Public Works Department's Environmental Control Section. All of the nondomestic type wastewater dischargers have been identified and inspected. The Permits are issued / renewed annually.

Environmental Control reviews all new Business License Applications. Environmental Control reviews building plans

(Continued on page 7)

New Nevada Operators Certified



These operators passed water certification exams for distribution and treatment grades 1, 2, 3 and 4. Congratulations to all !

Distribution grades 1, 2, 3 and 4

D-1: Atiemo, Nicholas; Atkinson, Charles; Beers, Raymond; Bilberry, Charles; Billingsley, Gary; Church, Bobbie; Corns, Robert; Crow, Michael; Foss, Kyle; Franco, Carlos; Gardner, Thomas; Garrison, Justin; Green, Gary; Katt, Karl; McCann, Robert; Monreal, George; Morgan, Kevin; Ogle, Timothy; Sager, Dominick; Self, Clay; White, Edgar

D-2: Besserer, Ronald; Corrente, Charles; Cozzens, Phil; Del Carlo, Vincent; Enderson, William; Johnson, Dale; Kidd, Mitchell; Leeper, Jeffrey; Lescher, Frank; Little, Wayne; Lomprey, Troy; Manz, Blain; Mothershead, Eric; Oliverius, Douglas; Rosenberger, James; Schmucker, Samuel; Sherman, Wayne; Velecheck, Ronald; Wiley, Harold

D-3: Dickton, Glenn; Gay, Stephen; Hill, Donald; Mann, Robert

D-4: Delisle, Maurice

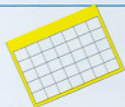
Treatment grades 1, 2, 3 and 4

T-1: Bethard, Hudson; Cabo, Edwardo; Dickton, Glenn; Foss, Kyle; Little, Wayne; McCann, Robert; Pike III, Aldie; Rosso, Bob; Vanassche, Wayne; Vosburg, Rick

T-2: Delisle, Maurice; Golliher, Terry

T-3: Erickson, Chris

T-4: Laughter, H. Grant; Wert, Eric



Training Calendar for 2007

2007

January 10 - Laughlin- NvRWA Fire Hydrant Training. See www.nvrwa.org for information.💧

January 11 - Laughlin - NvRWA Water Sampling Procedures Training. See www.nvrwa.org for information.💧

January 16 - Lovelock- NvRWA CSUS/OWP Small Water System Video Series. See www.nvrwa.org for information.💧

January 18 - Yerington- NvRWA CSUS/OWP Small Water System Video Series. See www.nvrwa.org for information.💧

January 23 - Overton- NvRWA CSUS/OWP Small Water System Video Series. See www.nvrwa.org for information.💧

January 25 - Lovelock- NvRWA CSUS/OWP Small Water System Video Series. See www.nvrwa.org for information.💧

February 23 - UNR Videoconference. Info: Crystel Montecinos at 775/240-1396.💧

March - State Water Certification Exam. Check NDEP/BSDW Website for more information.

March 13-16 - Reno- NvRWA NvRWA Annual Training and Technical Conference. SRF Scholarships are available. See www.nvrwa.org for information.💧

March 15 - Nevada Training Coalition Meeting.

March 30 - UNR Videoconference. Info: Crystel Montecinos at 775/240-1396.💧

April 20 - UNR Videoconference. Info: Crystel Montecinos at 775/240-1396.💧

May 23 - Reno/Sparks - Wastewater Certification Exam Review for Grades 1, 2, and 3. See www.nvrwa.org for information.💧

July 24-26 - Reno/Sparks - NvRWA Training, Wastewater A to Z. See www.nvrwa.org for information.💧

University of Nevada, Reno
Colleges of Agriculture, Biotechnology and Natural Resources & Cooperative Extension
2005 Videoconference Training Calendar: www.unce.unr.edu/swp.wkshps.htm

UNR videoconference classes for water system operators and managers are available in most communities. To request a workshop in your area, call Crystel Montecinos at 775/240-1396 or e-mail: xtelle@aol.com.

Community College of Southern Nevada
Wastewater & Water Technology Program
Info: LeAnna Risso, 702/434-6600 ext. 6418.

WWET Training in Clark County

Training for water treatment plant and distribution system operators, wastewater treatment plant and collection system operators, and other professionals working within these fields. Info: Jeff Butler 702/258-3296; see www.wwet.org for a current training calendar.

State of Nevada Water Certification Exams

All exams will be proctored on the date listed. Applications are due to the state (Steve Brockway) 45 days before exam dates. A proctor will contact examinees to schedule testing. Contact Debra Kaye at 775/834-8114 for information about 2006 exam dates.

Nevada Rural Water Association

Training at your site can be added upon request. Please send requests through nvrwa.org, or contact Andy Andersen at 775-781-2469.

Wastewater Certification Board Testing

Wastewater certification exams are given in quarterly.

Info: 775/465-2045 or www.nvwea.org.

Pretreatment *(Continued from page 6)*

for new commercial construction and remodels to ensure facilities will have the necessary pretreatment devices. This helps ensure that the construction of new facilities will be in compliance with pretreatment requirements.

Since 1983, the Pretreatment Program has made great strides in reducing the discharge of toxic pollutants into sewer systems and the waters of the United States. These strides can be attributed to the efforts of many Federal, State, local, and industrial representatives who have been involved with developing and implementing the various aspects of the Pretreatment Program.

💧 This symbol designates Nevada Division of Environmental Protection pre-approved training for contact hours. Other training may be eligible for contact hours but is not yet pre-approved. Before attending any training, contact NDEP at 775/687-9527 for approval. Ten hours of approved training equals 1 CEU. A different ratio applies for safety training.

Nevada Drinking Water and Wastewater Training Coalition

American Water Works Association California/Nevada Section

www.ca-nv-awwa.org
909/291-2101

Indian Health Service

Dominic Wolf, 775/784-5327

NDEP

<http://ndep.nv.gov/bwpc/bwpc01.htm>
Adele Basham, DWSRF, 775/687-9488
Michelle Stamates, AB 198 Water
Grant Program, 775/687-9331
Nevan Kane, Wellhead Protection,
775/687-9426

Nevada Rural Water Association

www.nvrwa.org
775/841-4222
Bob Foerster, Executive Director
John Allred
Curtis Duff
Teresa Taylor
Jonn Scovil
Andy Andersen
David Willard

Public Utilities Commission of Nevada

www.puc.state.nv.us
Mark Clarkson, P.E., Senior
Engineering Analyst, 775/684-6132

Bureau of Safe Drinking Water

<http://ndep.nv.gov/bsdsw/index.htm>
775/687-9520

Jim Balderson, SWAP, 687-9517
Steve Brockway, CEU approval, 687-9527
Dana Pennington, 687-9516
Bert Bellows, arsenic, 687-9525

Nevada Water Environment Association

www.nvwea.org
775/465-2045
Starlin Jones, 775/861-4104
Eric Leveque, 702/792-3711

Rural Community Assistance Corporation

www.rcac.org
775/323-8882
Stevan Palmer

U.S. Environmental Protection Agency, Region 9

www.epa.gov/region09
Marvin Young, 415/972-3561
USDA Rural Development
www.usda.gov/rus/water/index.htm
Cheryl Couch, 775/887-1222, ext. 22
Kay Vernatter, 775/887-1222 ext. 28

University of Nevada, Reno Dept. of Civil Engineering

Dean Adams, 775/784-1474
Tigren, Inc.
Crystel Montecinos, 775/240-1396

UNR Natural Resources and Environmental Science and Cooperative Extension

www.unce.unr.edu/swp
Mark Walker, 775/784-1938
NDEP Board for Financing Water Projects
<http://ndep.nv.gov/bffwp/index.htm>
**Water/Wastewater Education and Training
Consortium of Southern Nevada — WWET**
www.wwet.org
Jeff Butler, 702/258-3296
Farr West Engineering
Brent Farr, P.E. 775/851-4788

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